



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/801,728 | 03/16/2004 | Minghua Fu | TEPS-0034 | 1855 |
| 27964 | 7590 | 07/03/2006 | EXAMINER | |
| HITT GAINES P.C. P.O. BOX 832570 RICHARDSON, TX 75083 | | | TERESINSKI, JOHN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2858 | |

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|---------------------------|--|
| Office Action Summary | Application No. 10/801,728 | Applicant(s) FU ET AL. | |
| | Examiner John Teresinski | Art Unit 2858 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-10, 12-17, 19 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,529,013 to Skendzic et al..

Regarding claims 1, 8 and 15, Skendzic et al. disclose a three-phase voltage sensor including three input voltage lines (column 5 lines 1-9, Fig. 6A-C, elements 601A-C, V_A , V_B , V_C); and a phase voltage circuit, including: a line voltage stage (Fig. 6A-C, elements 610A-C), coupled to said three input voltage lines, that provides three corresponding line voltages (636A-C), and a difference voltage stage, coupled to said line voltage stage, that provides three corresponding phase voltages from said three corresponding line voltages (Fig. 7B, elements 750A-C).

Regarding claims 2, 9 and 16, Skendzic et al. disclose the at least three input voltage lines lack a neutral line (Fig. 6A-C, elements 601A-C, V_A , V_B , V_C).

Regarding claims 3, 10 and 17, Skendzic et al. disclose line voltage stage comprises two differential amplifiers and line voltage stage has three differential amplifiers (635A-C).

Regarding claims 5, 12 and 19, Skendzic et al. disclose difference voltage stage comprises one differential amplifier and has three differential amplifiers (Fig. 7B 750A-C).

Regarding claims 7, 14 and 21, Skendzic et al. disclose the line voltage stage and the difference voltage stage employ a common reference point (Fig. 6A-C, 7A-B, ground reference point).

Regarding claims 6 and 13, Skendzic et al. disclose the differential amplifier provides a phase voltage by subtracting a second line voltage from a first line voltage to yield a difference; and scaling the difference by a scaling factor/generated product for each line (column 1 lines 60-67, column 2 lines 1-11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 11, 18 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Skendzic et al. in view of U.S. Patent No. 4,366,521 to Jessee.

Regarding claims 4, 11, 18 and 20, Skendzic et al. disclose the differential amplifier provides a phase voltage by subtracting a second line voltage from a first line voltage to yield a difference; and scaling the difference by a scaling factor/generated product for each line (column 1 lines 60-67, column 2 lines 1-11). Skendzic et al. does not explicitly disclose a first of said two differential amplifiers provides a first line voltage by subtracting a second input voltage from a first input voltage and a second of said two differential amplifiers provides a second line voltage by subtracting said first input voltage from a third input voltage. Jessee discloses a method and

Art Unit: 2858

device for determining components of multiphase AC systems including three input voltage lines (phi a-c) and providing a first line voltage by subtracting a second input voltage from a first input voltage and a second of said two differential amplifiers provides a second line voltage by subtracting said first input voltage from a third input voltage (Fig. 3 elements 19, 21 and $n(V_b - V_a)$ and $n(V_c - V_b)$). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include subtracting the voltages as taught by Jessee into Skendzic et al. for the purpose of isolating individual phase voltage.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following is cited to further show the state of the art with respect to methods and devices in general for measuring phase voltages:

U.S. Patent No. 4,933,630 to Dupraz discloses a system for measuring phase currents in 3-phase installation.

U.S. Patent No. 4,901,005 to Shin et al. discloses a voltage detector for polyphase systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (571) 272-2235. The examiner can normally be reached on M-F 8:30 - 5:00.

Art Unit: 2858

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JT

June 23, 2006



DIANE LEE
SUPERVISORY PATENT EXAMINER